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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/589,350	08/11/2006	Tomohisa Hoshino	10294.0002	8175

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EXAMINER	
SINCLAIR, DAVID M	

ART UNIT	PAPER NUMBER
2831	

MAIL DATE	DELIVERY MODE
08/03/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/589,350	HOSHINO, TOMOHISA	
	Examiner	Art Unit	
	DAVID M. SINCLAIR	2831	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on *11 August 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13 and 17-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13 and 17-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *11 August 2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 8 is objected to because of the following informalities: "is the vibrating electrode" lacks antecedent basis and is therefore being read as "is a vibrating electrode".

2. Claim 11 is objected to because of the following informalities: "said supporting member" lacks antecedent basis and is therefore being read as "said first supporting member".

3. Claim 13 is objected to because of the following informalities: "is the vibrating electrode" lacks antecedent basis and is therefore being read as "is a vibrating electrode".

Appropriate corrections are required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 3-5, 8, & 10-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Ikeda et al. (6,145,384).

In regards to claim 1, Ikeda '384 discloses

A capacity type sensor comprising: a first electrode (111 – fig. 5; C8:L66 to C9:L23); a second electrode (161 – fig. 5; C8:L66 to C9:L23) which is disposed opposedly to said first electrode; a guard electrode (116 – fig.5; C8:L66 to C9:L23) which is disposed opposedly to said first electrode; a potential equalizer to make the potential difference between said first electrode and said guard electrode close to zero; and a capacity type sensor detector to detect impedance change between said first electrode and said second electrode (fig. 6; C10:L46 to C12:L40).

In regards to claim 3, Ikeda '384 discloses

The capacity type sensor according to claim 1 further comprising a first supporting member (100 – fig. 5; C8:L66 to C9:L23) to fix said guard electrode and said first electrode.

In regards to claim 4, Ikeda '384 discloses

The capacity type sensor according to claim 1 further comprising a second supporting member to fix said second electrode and said guard electrode (100 – fig. 5; C8:L66 to C9:L23).

In regards to claim 5, Ikeda '384 discloses

The capacity type sensor according to claim 1 further comprising a substrate (100 – fig. 5; C8:L66 to C9:L23) on which either one of said first electrode or said second electrode, and said guard electrode are formed (fig. 5), wherein said guard electrode is made out of semiconductor layer which has different conductivity type from said first electrode or said second electrode (C14:L6-11).

In regards to claim 8, Ikeda '384 discloses

The capacity type sensor according to claim 1, wherein at least one of said first electrode and said second electrode is a vibrating electrode (161 – fig. 5; C8:L66 to C9:L23).

In regards to claim 10, Ikeda '384 discloses

A capacity type sensor comprising: a first electrode (111 – fig. 4-5; C8:L66 to C9:L23) and a second electrode (161 – fig. 4-5; C8:L66 to C9:L23) which are opposedly disposed each other and an area of either one of said first and second electrode is made narrower than another (fig. 4); and a first supporting member (130 – fig. 5) which is disposed outside of outer periphery of one of said electrodes with a narrower area to support another one of said electrodes with a wider area (fig. 5).

In regards to claim 11, Ikeda '384 discloses

The capacity type sensor according to claim 10 further comprising a substrate (100 – fig. 5; C8:L66 to C9:L23), wherein said supporting member supports said electrode with the wider area on said substrate (fig. 5).

In regards to claim 12, Ikeda '384 discloses

The capacity type sensor according to claim 11, wherein either one of said first or second electrodes is disposed on said substrate, and a second supporting member (120 – fig. 5) is disposed between said substrate and either one of said electrodes which is disposed on said substrate.

In regards to claim 13, Ikeda '384 discloses

The capacity type sensor according to claim 12, wherein an opening portion is formed at the central part of said substrate (fig. 5), and said electrode formed on said second supporting member is a vibrating electrode (161 – fig. 5; C8:L66 to C9:L23).

6. Claims 1-2 & 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Kobayashi (2003/0080755).

In regards to claim 1, Kobayashi '755 discloses

A capacity type sensor comprising: a first electrode (61a/61b – fig. 13; [0099]); a second electrode (63 – fig. 13; [0099]) which is disposed opposedly to said first electrode; a guard electrode (611/621 – fig. 13; [0099]) which is disposed

opposedly to said first electrode; a potential equalizer to make the potential difference between said first electrode and said guard electrode close to zero; and a capacity type sensor detector to detect impedance change between said first electrode and said second electrode (fig. 13; [0022] & [0100]).

In regards to claim 2, Kobayashi '755 discloses
The capacity type sensor according to claim 1, wherein said guard electrode is disposed between said first electrode and said second electrode (fig. 13).

In regards to claim 9, Kobayashi '755 discloses
The capacity type sensor according to claim 1, wherein both of said first electrode and said second electrode are fixed electrodes ([0087]).

7. Claims 1-4, 9-12, & 17-19 are rejected under 35 U.S.C. 102(e) as being anticipated by Ryhanen et al. (2005/0030724).

In regards to claim 1, Ryhanen '724 discloses
A capacity type sensor comprising: a first electrode (s - fig. 13; [0069]); a second electrode (D – fig. 13; [0069]) which is disposed opposedly to said first electrode; a guard electrode (g – fig. 13; [0069]) which is disposed opposedly to said first electrode; a potential equalizer to make the potential difference between said first electrode and said guard electrode close to zero ([0068]); and a capacity type

sensor detector to detect impedance change between said first electrode and said second electrode ([0064-0065]).

In regards to claim 2, Ryhanen '724 discloses

The capacity type sensor according to claim 1, wherein said guard electrode is disposed between said first electrode and said second electrode (fig. 13).

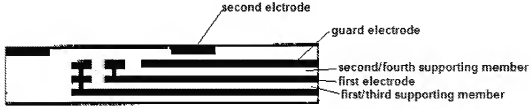

Figure 1: Altered version of Ryhanen '724 fig. 13a showing examiner labels

In regards to claim 3, Ryhanen '724 discloses

The capacity type sensor according to claim 1 further comprising a first supporting member to fix said guard electrode and said first electrode (present office action fig. 1 (POA1).

In regards to claim 4, Ryhanen '724 discloses

The capacity type sensor according to claim 1 further comprising a second supporting member to fix said second electrode and said guard electrode

(POA1).

In regards to claim 9, Ryhanen '724 discloses

The capacity type sensor according to claim 1, wherein both of said first electrode and said second electrode are fixed electrodes (fig. 13).

In regards to claim 18, Ryhanen '724 discloses

A capacity type sensor comprising: a first electrode with wider area (s - fig. 13; [0069]); a second electrode with narrower area (D – fig. 13; [0069]) which is disposed on said first electrode with the wider area; a third supporting member which is formed on said first electrode with the wider area; and a fourth supporting member which is supported by said third supporting member, wherein said second electrode with the narrower area is formed on said fourth supporting member (present office action fig. 1 (POA1)).

In regards to claim 19, Ryhanen '724 discloses

The capacity type sensor according to claim 18 further comprising: a guard electrode (g – fig. 13; [0069]) which is disposed between said third supporting member and said fourth supporting member (POA1); a potential equalizer to make the potential difference between said first electrode and said guard electrode close to zero ([0068]); and a capacity type sensor detector to detect

impedance change between said first electrode and said second electrode ([0064-0065]).

8. Claims 1-2, 10-12, & 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Ackland et al. (6,097,195).

In regards to claim 1, Ackland '195 discloses

A capacity type sensor comprising: a first electrode (44 – fig. 3b; C4:L63); a second electrode (48 – fig. 3b; C5:L20-21) which is disposed opposedly to said first electrode; a guard electrode (46 – fig. 3b; C3:L64) which is disposed opposedly to said first electrode; a potential equalizer to make the potential difference between said first electrode and said guard electrode close to zero (C4:L61 to C5:L24); and a capacity type sensor detector to detect impedance change between said first electrode and said second electrode (abstract).

In regards to claim 2, Ackland '195 discloses

The capacity type sensor according to claim 1, wherein said guard electrode is disposed between said first electrode and said second electrode (fig. 3b).

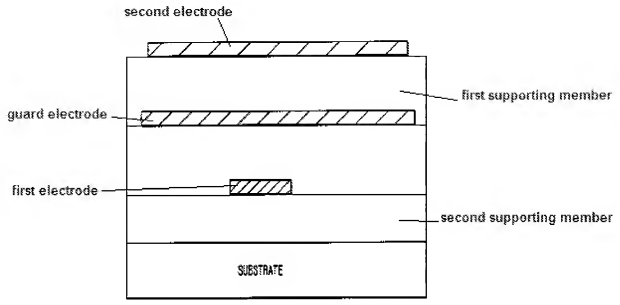

Figure 2: Altered version of Ackland '195 showing dielectric layers and examiner labels

In regards to claim 10, Ackland '195 discloses

A capacity type sensor comprising: a first electrode (44 – fig. 3b; C4:L63) and a second electrode (48 – fig. 3b; C5:L20-21) which are opposedly disposed each other and an area of either one of said first and second electrode is made narrower than another (fig. 3b); and a first supporting member (preset office action fig. 2 (POA2) & C3:L45-51) which is disposed outside of outer periphery of one of said electrodes with a narrower area to support another one of said electrodes with a wider area.

In regards to claim 11, Ackland '195 discloses

The capacity type sensor according to claim 10 further comprising a substrate, wherein said supporting member supports said electrode with the wider area on said substrate (POA2).

In regards to claim 12, Ackland '195 discloses

The capacity type sensor according to claim 11, wherein either one of said first or second electrodes is disposed on said substrate, and a second supporting member is disposed between said substrate either one of said electrodes which is disposed on said substrate (POA2).

In regards to claim 17, Ackland '195 discloses

The capacity type sensor according to claim 12 further comprising: a guard electrode (46 – fig. 3b; C3:L64) which is disposed between said first supporting member and said second supporting member; a potential equalizer to make the potential difference between said first electrode and said guard electrode close to zero (C4:L61 to C5:L24); and a capacity type sensor detector to detect impedance change between said first electrode and said second electrode (abstract).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

11. Claims1 & 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zias et al. (2003/0072127) in view of Ikeda '384.

In regards to claim 1,

Zias '127 discloses a capacity type sensor comprising: a first electrode (289 – fig. 22; [0043]); a second electrode (299/211/216 - fig. 22; [0043] & [0076]) which is disposed opposedly to said first electrode; and a capacity type sensor detector to detect impedance change between said first electrode and said second electrode ([0043]). Zias '127 fails to disclose a guard electrode which is disposed opposedly to said first electrode; a potential equalizer to make the potential difference between said first electrode and said guard electrode close to zero.

Ikeda '384 discloses a capacity type sensor comprising: a first electrode (111 – fig. 5; C8:L66 to C9:L23); a second electrode (161 – fig. 5; C8:L66 to C9:L23) which is disposed opposedly to said first electrode; a guard electrode (116 – fig.5; C8:L66 to C9:L23) which is disposed opposedly to said first electrode; a potential equalizer to make the potential difference between said first electrode and said guard electrode close to zero; and a capacity type sensor detector to detect impedance change between said first electrode and said second electrode (fig. 6; C10:L46 to C12:L40).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the guard electrode and potential equalizer taught by Ikeda '384 with the sensor of Zias '127 to obtain a sensor with a reduced parasitic capacitance which is more sensitive and therefore capable of detecting minute changes.

In regards to claim 6,

The references as applied above disclose all the limitations of claim 6 except said first electrode or said second electrode includes a plate type thin film portion which is constituted by a depression at the central part of lower side of said first or second electrode, and said thin film portion is a vibrating electrode. However, Zias further discloses said first electrode or said second electrode includes a plate type thin film portion (216 – fig. 22; [0076]) which is constituted by a

depression at the central part of lower side of said first or second electrode (fig. 22), and said thin film portion is a vibrating electrode ([0044]).

In regards to claim 7,

The references as applied above disclose all the limitations of claim 6 except said first electrode or said second electrode including said thin film portion is a vibrating electrode. However, Zias further discloses said first electrode or said second electrode including said thin film portion is a vibrating electrode ([0044]).

12. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ikeda '384 in view of Ryhanen '724.

In regards to claim 17,

The reference as applied above discloses all the limitations of claim 17 except a guard electrode which is disposed between said first supporting member and said second supporting member; a potential equalizer to make the potential difference between said first electrode and said guard electrode close to zero; and a capacity type sensor detector to detect impedance change between said first electrode and said second electrode. However, Ikeda '384 further discloses a guard electrode; a potential equalizer to make the potential difference between said first electrode and said guard electrode close to zero; and a capacity type sensor detector to detect impedance change between said first electrode and said second electrode (see claim 1 rejection above).

Ryhanen '724 discloses a substrate, a first guard electrode, a first supporting member, a sensor electrode, a second supporting member, a second guard electrode, a third supporting member, and a drive electrode (fig. 13a).

It would have been obvious to one of ordinary skill in eth art at the time the invention was made to use two guard electrodes which sandwich a first electrode as taught by Ryhanen '724 in the capacity type sensor of Ikeda '384 to obtain a capacity type sensor in which the fixed electrode has excellent guarding properties.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

USPAT 6,860,154

USPAT 7,337,681

USPAT 5,091,691

USPAT 4,954,773

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAVID M. SINCLAIR whose telephone number is (571)270-5068. The examiner can normally be reached on Mon - Thurs. 8-4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego F. Gutierrez can be reached on (571) 272-2245. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Diego Gutierrez/
Supervisory Patent Examiner, Art Unit 2831

/D. M. S./
Examiner, Art Unit 2831